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COMMUNICATIONS

NOTES ON AN EYELASH CARRIED BY A PERFORATING INJURY INTO THE POSTERIOR AQUEOUS CHAMBER AND REMOVED ELEVEN WEEKS LATER

BY

L. H. SAVIN

LONDON

IN 1839, Ruete[12] described the interesting case of a tinker who had been struck in the left eye by a fragment of hot tin in 1834. In 1836, the eye was blind. The cornea, otherwise completely healthy, showed a fine and scarcely visible scar. The anterior chamber and aqueous humour were normal. The iris was of normal texture; but was adherent to the anterior lens capsule in almost the whole of the pupillary circumference. Iris pigment was noted in the pupillary area. Passing behind the pupillary edge four eyelashes of unequal length could be seen. A fifth lash lay in the posterior aqueous chamber, except for its tip, which protruded from a small perforation in the iris to the left of the pupil. The appearances remained unchanged on several successive examinations.

In 1868, Manz[9] reported a case in which a cilium entered the posterior aqueous chamber of the eye through a perforating

wound at the limbus, passing behind the iris. Some months later the eye had quietened; but vision had been reduced to the counting of fingers. The eyelash, which was surrounded by a dark mass, could be seen passing behind the iris. The patient refused treatment.

Wagenmann[14] in an excellent review gives sixty-three references to the subject of intra-ocular eyelashes; but cites no other cases of a cilium in the posterior aqueous chamber.

The following case would therefore appear sufficiently unusual to warrant a report:—

On June 4, 1935, the patient, a Bermondsey barge builder, aged 51 years, was hit in the left eye by a piece of a rivet. When admitted on the same day to the Royal Eye Hospital, the cornea showed a perforating wound about 4 mm. in length, extending from near the limbus above and nasally down and outwards towards the corneal centre. The anterior chamber was full of blood and the eye was soft. No intra-ocular details were visible. Repeated radiographs showed no evidence of an intra-ocular foreign body. The eye was treated by rest and atropine.

By June 29, 1935, the hyphaema had completely cleared, and vision was 6/24 partly. The edges of the corneal wound had united. The pupil was irregular as iris was attached to the whole posterior length of the wound. The eye remained irritable with ciliary injection but no keratic precipitates.

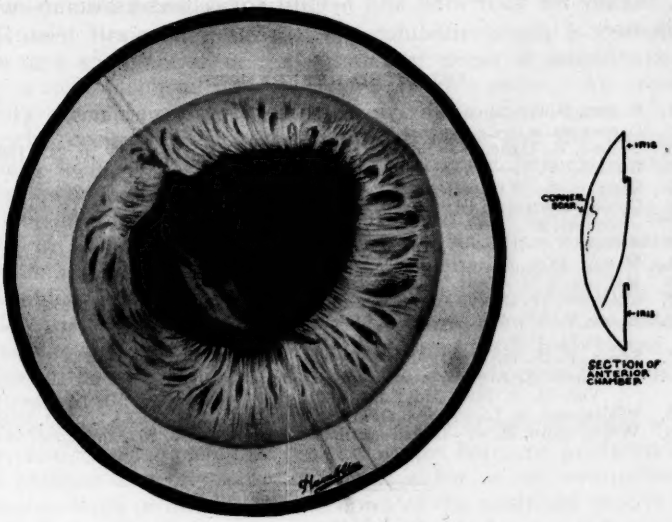
On July 29, 1935, a limbal keratome incision was made opposite the original wound, and an attempt was made to divide the anterior synechia with de Wecker's scissors. The cut iris bled freely, but the consequent hyphaema cleared in a few days. Slit-lamp examination then showed that the synechia had been completely divided, with the apparent exception of a fine strand which passed from the corneal scar backwards, to turn round the cut edge of the iris and be lost to view. It was assumed that this was a residual band of iris tissue.

The eye became very much less irritable, but as slight ciliary injection persisted, it was decided to divide the strand. An attempt was made to do this with a Ziegler's knife on August 10, 1935. The strand was insufficiently taut to be cut cleanly, but before division was pulled upon by the advancing knife blade. Surprise was considerable when the tip of an eyelash appeared in the anterior chamber, drawn down from behind the iris by the strand, much as a whip-handle might be pulled along by the whip-lash. The illustration shows the eyelash after being pulled downwards, now protruding into the anterior chamber from behind the iris.

It was decided to remove the eyelash. This was easily done with curved iris forceps through a small keratome incision on

August 21, 1935. The eye rapidly whitened, and when recently seen, vision was 6/9 without a correcting glass. The right eye sees 6/5 and has never been in any way affected.

Microscopical examination showed numerous pigmented cells, presumably from the posterior epithelium of the iris adherent to



The eyelash in the anterior chamber after being drawn down from behind the iris.

The microscopic appearance of the eyelash after its removal.

the shaft of the cilium. The cuticle of the hair was roughened. There was no root attached to the lash.

Remarks:—The few recorded cases are insufficient to permit of generalisation on the behaviour of eyelashes in the posterior aqueous chamber. In the anterior chamber they are frequently well tolerated, unless septic. Wagenmann[14] cites a case of a cilium tolerated for as long as 34 years after its implantation. In some cases the cilia have caused irritation and have been removed[4, 5, 11]. In rare instances intra-ocular cilia have caused

granulation tissue with giant cells[16], an epidermal tumour[11], serous cysts of the iris[2], pearl cysts of the iris[16], and in two cases[6,7] sympathetic ophthalmitis. The second case[7] was rather doubtful. A subconjunctival granuloma has recently been reported[13] from an embedded cilium.

I wish to thank Messrs. A. D. Griffith, R. H. Rushton, and A. Sorsby for their kind and helpful advice and assistance with this case.

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A CASE OF "EXOPHTHALMIC OPHTHALMOPLEGIA WITH THYROTOXICOSIS"

BY

H. B. STALLARD

LONDON

AT the International Congress of Neurology, 1935, Russell Brain reported 22 cases of ophthalmoplegia occurring in patients suffering from exophthalmos with signs of thyrotoxicosis. He suggested that the clinical features of these cases constituted a distinct syndrome.

This disorder may develop spontaneously or occur after partial thyroidectomy for hyperthyroidism. Its onset may be acute or insidious and it appears to affect females to males in the proportion of 7 to 4 (exophthalmic goitre 10 to 1). Russell Brain states that it occurs in middle life, 18 of his 22 patients being over 40 and 9 over 50 years of age. The case described below which came under my care at the Moorfields Eye Hospital was a male aged 31 years.

The thyroid is seldom visibly or papably enlarged and the exophthalmos is generally of a moderate degree and seldom severe. Tachycardia, digital tremor, increased basal metabolic rate and loss of weight are usually slight as compared with these clinical signs in exophthalmic goitre. The exophthalmos and ophthalmoplegia correspond with each other in being either unilateral or bilateral.

Russell Brain suggests that the ophthalmoplegia is probably due to a combination of the mechanical stress of exophthalmos and a toxic factor affecting the extra-ocular muscles. An opportunity of making a pathological examination of the extra-ocular muscles occurred in the case reported below and the findings agreed with those of other recent observers. The extra-ocular muscles are enlarged about 5 or 6 times their normal size (the levator palpebrae superioris excepted), the muscle bellies are fusiform in shape, pale and oedematous. Histological examination reveals interfascicular oedema and collagen, and small round cells resembling lymphocytes, considered by some authorities to be undifferentiated mesenchyme cells which later form fibrous tissue. Granular and hyaline degenerative changes have been noted in some of the muscle fibres. Perivascular lymphocytic infiltration is present in some cases.

Recent experimental work on the aetiology of exophthalmos with thyrotoxicosis suggests that the thyrotropic hormone produced by the anterior lobe of the pituitary acts either on the sympathetic nerve endings or directly on the fibres of the unstriped muscle in Tenon's capsule, the band 1 cm. in length which extends from the levator palpebrae superioris to the upper margin of the tarsal plate and that in the floor of the orbit attached to the periosteum near the inferior orbital fissure. It is improbable that the contraction of this unstriped muscle alone would be sufficient to cause an appreciable degree of exophthalmos if the extra-ocular muscles are healthy.

Russell Brain has suggested that exophthalmic ophthalmoplegia with thyrotoxicosis is due to the excessive production of an X-factor, which he believes to be the thyrotropic hormone of the pituitary and that hyperthyroidism plays a subordinate part. His conception infers that in exophthalmic goitre both this X-factor and the thyroid secretion are in excess and in toxic adenoma of the thyroid there is pure hyperthyroidism, the X-factor taking little or no part and thus probably accounting for the absence of exophthalmos.

In 5 of Russell Brain's 22 cases the thyroid was examined histologically, one of these presented the hyperplasia typical of exophthalmic goitre and the other 4 showed atypical changes with signs of colloid retention more than colloid secretion. These

features are probably correlated with the mild general symptoms and signs of thyrotoxicosis. Improvement may be spontaneous, but complete recovery is exceptional, some degree of exophthalmos and ophthalmoplegia persisting. Rest, iodine administration and sedatives do not accelerate improvement and partial thyroidectomy has little or no effect upon either the exopthalmos or the ophthalmoplegia. Exophthalmos and ophthalmoplegia may even develop after partial thyroidectomy in a patient whose basal metabolic rate is actually subnormal. The case recorded below had a subnormal basal metabolic rate.

Case Report

W. G. a male, aged 31 years, attended my clinic at the Moorfields Eye Hospital in August, 1934, on account of diplopia. In June, 1934, both eyes were noticed to be prominent and about this time he experienced diplopia on looking up and after having the eyes closed for 2 or 3 minutes. Since June, these symptoms had become progressively worse and he had experienced lassitude and a tired feeling in the eyes.

He was nervous and easily worried. Bilateral exophthalmos was evident, the left side being more marked than the right, and the movements of the left inferior rectus and inferior oblique were defective.

The thyroid was slightly enlarged, soft, and of uniform consistence. His pulse rate varied 64—90. The reflexes were brisk. The basal metabolic rate was - 4 per cent., radiographs of the skull and the blood count showed no abnormality. The Wassermann reaction was negative. The nose and throat department reported inflammation in pharyngeal lymphoid tissue.

The patient was transferred to the Medical Professorial Unit at St. Bartholomew's Hospital and I am indebted to Professor Witts and Drs. Spence and Scowen for permission to publish the following notes:—

At 12 noon on September 14, 1934, and at 11 a.m. on September 15 and 16, 1934, 600 organon units of thyrotropic hormone (1,200 Schoeller units) were injected subcutaneously. The basal metabolic rate, temperature, pulse and respiration rate, are charted below.

There was a rise of the basal metabolic rate from 3 to 21 per cent. within 24 hours of the first injection, followed by a further rise to 30 per cent. after the second and third and thence to 41 per cent. (the peak of the curve) three days after the third and last injection.

A rise of temperature occurred during the 12 hours after injection and there was a corresponding slight increase in the pulse and respiration rates. The patient had a frontal headache

10 hours after the first injection (at 10 p.m. on September 14, 1934), and 11 hours after the second and third injections (at 10 p.m. on September 15 and 16, 1934), this was relieved by sleep, was slight on the following morning and was not felt after September 17. On September 16, the patient's appetite lessened and did not improve till September 19.

Redness and swelling were noticed at the sites of subcutaneous injection for 2 to 3 days, after which time these signs subsided.

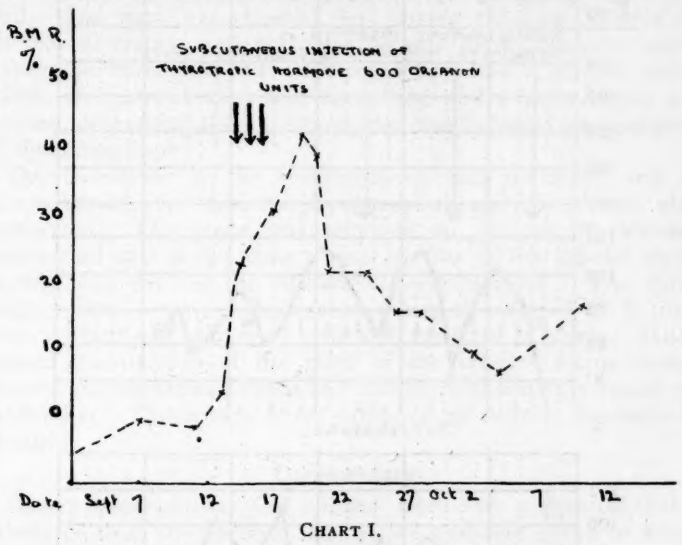

CHART I.

Graph to show the rise in basal metabolic rate after the three injections of thyrotropic hormone.

The degree of exophthalmos remained the same until September 19, when it was a little increased on the day the basal metabolic rate reached its peak at + 41 per cent; the exophthalmos became less again on September 20, when the basal metabolic rate was + 38 per cent. and on the right side it showed further diminution on September 28, but the left eye remained the same.

On the day following the third injection, September 17, the patient became more nervous, the skin " clammy," the digital tremor more marked, but there was no visible increase in the size of the thyroid gland. On September 28, the digital tremor was slight and the thyroid isthmus was just palpable. On this date the basal metabolic rate had fallen to 15 per cent. On October 4, the basal metabolic rate was 6 per cent. and on October 7, the left

eye became painful and injected owing to corneal ulceration which spread in the next 5 days until it occupied a horizontal transverse band about 4 mm. broad across the centre of the cornea. On

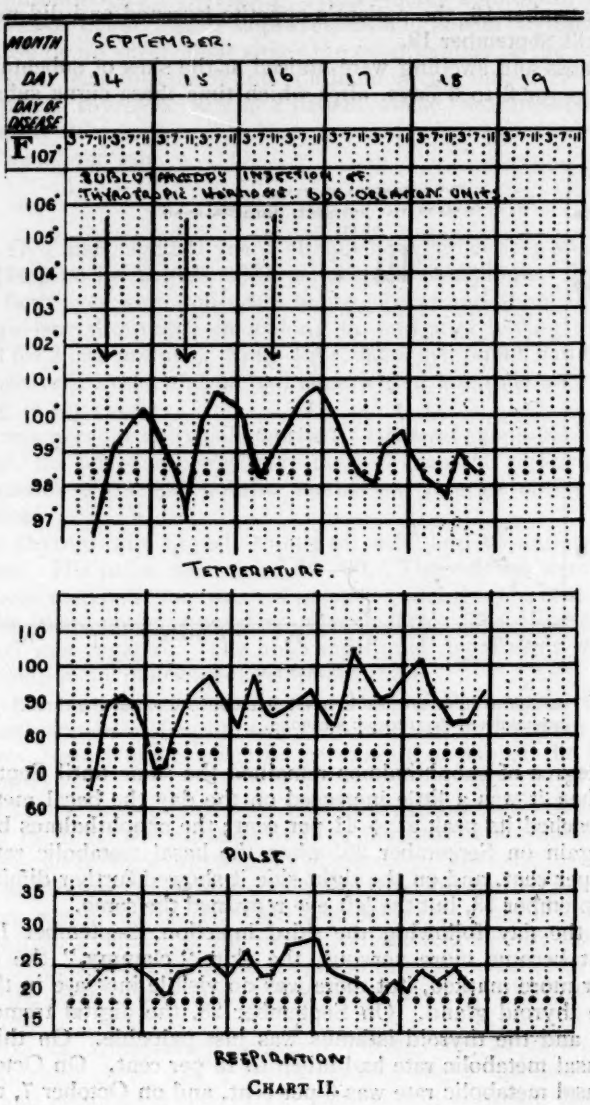

CHART II.

October 10, the basal metabolic rate had risen to 16 per cent. after a sleepness night from pain in the left eye. The conjunctiva became increasingly chemosed and oedematous, exophthalmos of the left eye was more marked and on October 13, a central tarsorrhaphy was performed. Some temporary improvement followed this operation but on October 29 the exophthalmos and chemosis increased, the lids were under considerable tension and on account of severe pain from pressure of the sutured lids on the cornea the tarsorrhaphy was temporarily divided on November 2nd. The pain was relieved, but during the next 4 days the corneal ulceration and chemosis became more extensive and a hypopyon developed. On November 6, under a general anaesthetic, the corneal ulcer was carbolized and a paracentesis performed, evacuating the hypopyon, and was followed by resuturing of the tarsorrhaphy.

On November 8, the exophthalmos had increased and by November 10, the tarsorrhaphy gave way and the corneal ulcer perforated. The globe was removed on account of extensive destruction and at the same time a portion of the inferior rectus muscle was excised for histological examination. The extraocular muscles were considerably enlarged being 5 or 6 times their normal size, and were pale and fusiform in shape. Histological examination of the piece of the inferior rectus muscle showed an interstitial fibrosis and chronic inflammatory round cell infiltration. The muscle fibres exhibited no definite degenerative changes.

Commentary

Recent experimental and clinical work has suggested that a substance from the anterior lobe of the pituitary gland to which the name of thyrotropic hormone has been applied is an aetiological factor in the production of exophthalmos, and that this substance operates through a nervous mechanism. Some authorities state that the thyrotropic hormone fails to cause exophthalmos if the cervical sympathetic is divided whilst others maintain that it acts directly on the sympathetic nerve endings or on the unstriped muscle fibres in the orbit. Marine and his co-workers Friedgood, Scowen and Spence, have shown that the injection of thyrotropic hormone into an experimental animal increases thyroid activity causing hyperplasia of the gland, an increase of iodine, accelerated pulse rate, raised basal metabolic rate, loss of weight and exophthalmos. The exophthalmos is more readily developed in a thyroidectomized animal.

There is also some clinical evdience to lend support to this view. In some cases of acromegaly due to an adenoma of the anterior lobe of the pituitary the basal metabolic rate is raised. Falta has

noted thyroid hyperplasia and Worster Drought has recorded a case of exophthalmic goitre in association with this disease.

The conclusions to be drawn from a survey of the experimental work are as follows:—

The thyrotropic hormone of the anterior lobe of the pituitary is capable of producing exophthalmos in intact animals and more readily in those which have had the thyroid removed or are suffering from hypothyroidism. After partial thyroidectomy in man even with a subnormal basal metabolic rate progressive exophthalmos may develop or be precipitated by the administration of thyroid extract. In the literature there are reported some 21 cases including that of Russell Brain's in which exophthalmos developed during the administration of thyroid extract for myxoedema, obesity or for some other purpose.

It is probable that certain individuals respond to thyroid extract by producing a substance which operates on the unstriped muscle of the orbit. There is some experimental evidence to suggest that this substance is the thyrotropic hormone of the pituitary.

If this conception be correct it would seem that the course of the orbital changes are first contraction of the unstriped muscle causing upper lid retraction, then exophthalmos which is augmented by the increase of pressure inside the cone formed by the recti muscles with compression of veins and their peripheral engorgement and subsequent oedema. The effective action of the unstriped muscle is enhanced by the myopathy of the extra-ocular muscles the enlargement of which may also contribute in a passive manner towards the exophthalmos.

The clinical features of the case reported above conform with those described by Russell Brain under the diagnostic label of "exophthalmic ophthalmoplegia with thyrotoxicosis;"—the relatively small degree of exophthalmos, moderately increased pulse rate (64—90), slight enlargement of the thyroid and the markedly defective action of two of the extra-ocular muscles of the left eye on the same side as the greater degree of exophthalmos. These features together with the low basal metabolic rate (– 4 per cent.) and the relatively slight general symptoms suggest that possibly some factor other than the products of hyperactivity of the thyroid gland was responsible for the exophthalmos and the changes in the extra-ocular muscles. The injection of thyrotropic hormone of the pituitary was in the nature of a clinical test and it produced such interesting events as a temporarily raised basal metabolic rate, increased temperature, pulse and respiration rate, increased exophthalmos, digital tremor and a perspiring, clammy skin. It may be that the degree of exophthalmos which developed after these injections of thyrotropic hormone would have been less in the case of a normal control.

The features of this case which are worthy of remark are the age of the patient, 31 years; the subnormal basal metabolic rate -4 per cent.; and the result of a histological examination of a portion excised from the inferior rectus muscle.

Summary

A case of exophthalmos with unilateral partial ophthalmoplegia affecting the inferior rectus and inferior oblique muscles associated with a basal metabolic rate of -4 per cent. and mild general symptoms of thyrotoxicosis in a male aged 31 years is described. The effects and significance of 3 injections on successive days of 600 organon units (1,200 Schoeller units) of the thyrotropic hormone of the anterior lobe are discussed.

I express my thanks to Dr. Powell, Southend Eye Hospital, for her kindness in referring this case to me at the Moorfields Eye Hospital.

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PERNICIOUS ANAEMIA WITH RETRO-BULBAR NEURITIS

BY

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LONDON

THE following case seems worth recording as an interesting example of pernicious anaemia with progressively diminishing visual acuity.

Case.—T. M. aged 55 years. Occupation.—Post Office sorter.

In December, 1929, this patient was first seen with a history of nine months' anaemia. He was found to have pernicious anaemia with a red blood count of 1,100,000. He was treated with liver and his blood count steadily rose. In February, 1933, he complained

of tingling in the toes but no objective signs of cord disease were then discovered. He discontinued treatment for a year and when again seen in June, 1934, his red blood count was down to 1,700,000. This again improved under liver treatment.

Patient first complained of visual disturbance in June, 1935, saying that he had obtained new glasses a month previously but that in spite of them his sight was worse. He was found to have 6/36 vision in each eye with correction and was still able to work as Post Office sorter. No abnormality seen in discs or fundi beyond the opalescent haze associated often with anaemias. Neurological examination showed that position sense was deficient in toes, and vibration sense in legs was diminished. His blood count was 4,900,000 but he had a complete achlorhydria. In March, 1936, vision in each eye was reduced to counting fingers. Nothing abnormal was seen in the fundi except the left disc looked a little paler than the right. He was found to have a full field in each eye to a 1° object but a large relative central scotoma in each eye. Patient smokes very little. Pupils reacted to light and seemed to retain contraction. Wassermann reaction negative.

SUMMARY OF BLOOD COUNTS

	12/12/29	23/1/30	3/3/33	16/11/34	18/12/34	25/6/35	19/9/35	5/6/36
R. B. C.	1,100,000	3,500,000	2,700,000	1,700,000	2,800,000	4,900,000	4,100,000	3,400,000
Hb. -	24%	70%	58%	44%	58%	96%	80%	90%
C. I. -	1·09	1	1·07	1·29	1·03	·98	·97	1·3

↑ Feb., 1930, developed tingling of toes.

↑ A year's intermission of liver treatment.

↑ June, 1935, first complained of failing vision.

↑ Vision much worse.

Summary of Case

1. This case of pernicious anaemia observed over seven years would appear to be responding very satisfactorily to liver treatment in so far as the blood condition is concerned.

2. *Complete achlorhydria continues to exist.*

3. Symptoms and signs suggestive of subacute combined degeneration of the cord exist, though the condition cannot be said to be fully developed.

4. Progressive failure of vision has been watched during the

past year, during the whole of which period patient's red blood count has been at a satisfactorily high level.

5. Optic atrophy does not exist, though possibly one disc is a little paler than the other.

6. Pupils continue to react to light.

7. Central relative scotomata exist, suggestive of retro-bulbar neuritis, and the visual fields are full.

I suggest that the eye condition might be accounted for by a de-myelination of the optic nerves comparable to the de-myelination of the postero-lateral columns found in sub-acute combined degeneration. The comparatively little interference with the axis cylinders would account for the non-development of optic atrophy.

I wish to thank Dr. C. C. Beatty, under whose care this patient is, for the notes on the progress of the anaemia.

A RETENTION CYST OF UNUSUAL SIZE, PROBABLY OF KRAUSE'S GLAND, SIMULATING ANGIOMA OF THE ORBIT

BY

D. V. GIRI

EASTBOURNE

DOREEN M. was first seen by me in January, 1928, at the Royal Eye Hospital, Eastbourne, at the age of 6 years, because of eyestrain, and a low hypermetropic correction was ordered. At the time nothing abnormal about her eyes or adnexa was noted. Again in February, 1929, and January, 1930, the eyes were refracted and nothing abnormal was found. In March, 1931, she came complaining of a lump on the upper lid of the R.E. at the inner end of the brow which " came and went," being sometimes very prominent and sometimes hardly noticeable. Sometimes she felt something " going over " and then it pained. On making the child bend her head forward a slight bulge was noticed. The consistency of the lump was probably soft but could not be definitely made out as it receded so easily on palpation.

When she was seen again in April, 1932, a cystic tumour—smooth, mobile, and non-adherent to the skin, could be distinctly felt at the upper inner angle of the orbit. By November, 1932, it was obvious to the naked eye and could easily be made prominent by bending the head forward. The patient gave a history of some bleeding from under the right upper lid without any apparent cause one day in the class-room. Eversion of the upper lid did not expose the tumour.

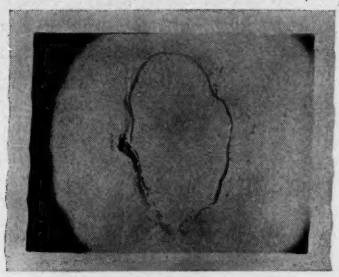
The case was referred to Mr. D. E. O'Connor Cuffey at the Eastbourne Ear, Nose, and Throat Hospital and he found that the tumour had no connection with any of the sinuses.

Dr. G. P. Norman, Head of the X-ray department of the Princess Alice Memorial Hospital, found no bony changes radiographically.

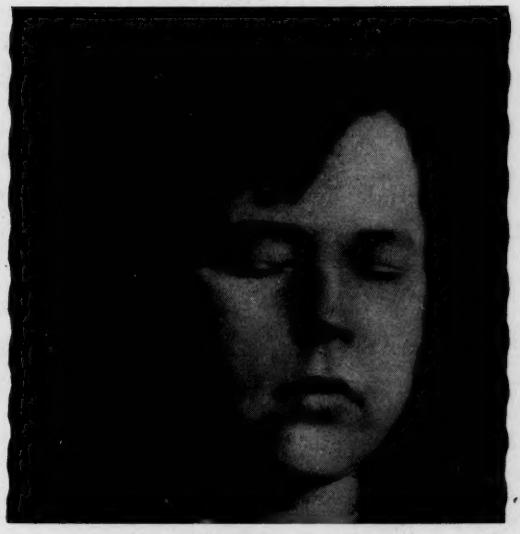
The girl and her parents wished to have the tumour removed.

On May 1, 1934, under local novocaine-adrenalin infiltration anaesthesia, an incision along the upper orbital margin about 1 inch long corresponding to the tumour was made, and by careful retraction and separation of the tissues with a blunt dissector and retractors and occasional snips with the scissors, a smooth, pale white, translucent oval cyst, about 3 cm. long and 1·7 cm. broad, was removed undamaged. The cyst was hardened in Zenker's fluid and sent to Mr. E. Wolff at the Royal Westminster Ophthalmic Hospital for histological examination, whose report runs as follows:—

"This is a cyst lined for the most part by two layers of cells, a deeper flattened and a more superficial cubical. In parts there are several layers of cells resembling altered conjunctiva. There is a well-marked fibrous tissue wall, and here and there nodules of lymphocytes. The cyst is most probably a retention cyst arising from the conjunctiva or gland of Krause. It is not an ordinary dermoid."



Section of hardened cyst. Actual size.



This is the first instance of the kind that has come under my notice. Considering the small number of cases recorded it is probably a rare occurrence. In the literature I have been able to gather only 5 cases of probable retention cyst of Krause's glands. Each of them differs from my case. None of them disappeared into the orbit or increased in size so strikingly on bending the head forward as in my case. Except perhaps the large conjunctival cyst described by Harrison Butler in "The Ophthalmoscope" in 1907, all arose from cicatricial conjunctiva; in my case there was no such complication. Contino's patient was a woman of 22 years of age who had suffered from trachoma from childhood; the cyst

measured 22 mm. × 10 mm., and was divided into 3 loculi by cicatricial bands running from above downwards.

Caocci's case was one of a voluminous cyst of Krause's gland resulting from occlusion of the duct of the gland due to trachoma and distended almost entirely by haemorrhage into it.

Michail's patient, a woman aged 26 years, suffered from bilateral tuberculosis of the conjunctiva and, during a course of 3 years under observation, developed bilateral cysts of Krause's glands and complete ankyloblepharon.

Leslie Paton removed a cyst of Krause's gland from a sergeant aged 32 years. The sergeant had been operated on for a chalazion some time previously and Paton found a cicatrix in the conjunctiva covering the cyst.

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PAPILLOMATA AND OTHER TUMOURS OF THE LIDS AND THEIR TREATMENT WITH THE ELECTROLYSIS NEEDLE

BY

JOSEPH MINTON, F.R.C.S.

LONDON

PAPILLOMATA of the lids occur frequently in middle-aged and elderly people of both sexes. They are more common on the lower lids. The pedunculated and sessile varieties occurring on the skin of the lids have been well described in most text-books, but very little has been said about the superficial wart-like processes situated upon the intermarginal area of the lids.

This variety of papillomata is seen in various forms: (1) A raised reddish tumour stretching from the ciliary margin to the internal margin of the lid; (2) marginal papillomata; (3) a flat papilloma growing from the skin of the lid, involving the ciliary margin and a portion of the intermarginal area. Most of these papillomata are flat and of the sessile variety.

One also sees small pointing papillomata growing from the ciliary margin. The surgical removal of these tumours is often very difficult, and involves splitting the lid, careful dissection and suturing of cut surfaces. The lid margin is often left distorted, scarred and notched. Entropion may follow the operation.

The use of the electrolysis needle in removal of these tumours is mentioned in several text-books of ophthalmology, but its technique is not described. With the aid of the electrolysis needle, the difficult operation is converted into one of great simplicity. The galvanic current is required, and it can be obtained from a multostat or pantostat run off from the mains, or a box with dry batteries made up by various firms and used by ophthalmic surgeons for electrolysis in epilation of lashes. The same machine is being used nowadays for catholysis treatment of detachment of the retina. The positive flat electrode is attached to the patient's arm covered with a moistened pad of lint. The negative electrode is used for the electrolysis, a steel or platinum needle inserted in a special electric needle holder serves as the active electrode.

The curved or straight steel needle is preferable to the pliable platinum needle. Local anaesthesia is obtained by injecting novocaine and adrenalin subcutaneously near the lid margin.

The current necessary for destruction of the base of the tumour is 3-4 milliampères.

The needle is inserted through the base of the tumour, and transfixes it, the current is turned on and bubbling appears. After a few seconds, the needle is withdrawn, and the tumour is transfixed at right angles to the first transfixion.

The procedure is repeated in several directions through the base of the papilloma. The needle is kept in position at each transfixion for only a few seconds. The papilloma could be left to fall off, but it is preferable to snip it off with scissors above the cauterised base. The whole operation is bloodless.

A collodion dressing is applied to the raw area. At the end of a week, the lid is healed, and no scarring remains.

One word of warning is necessary. If the needle is left in too long or the current used is too strong the surrounding healthy tissue will be cauterized, and scarring of the lid may follow. I have recently treated, at the Royal Eye Hospital, London, fifty consecutive cases of papillomata of the lids with the electrolysis needle with very good results.

The same method of treatment is used for cysts of glands of Moll at the internal margin of the lid. Small sebaceous cysts of the skin of the lid can be transfixed with the electrolysis needle in several directions and cut off. No suturing is required. Xanthomata are also amenable to the same treatment. Calcareous concretions on the conjunctival surface of the lids are at times very difficult to pick

out with a needle, a great deal of bleeding takes place, and the concretion is obscured from view. The electrolysis needle is extremely useful in giving a bloodless field of operation; the point of the needle is inserted under the concretion, and, in most cases, the concretion is easily dislodged. Granulomata of the conjunctiva following squint operations or excision of the eyeball can be easily cauterised at the base with the electrolysis needle and then snipped off; again the operation is practically bloodless. The electrolysis needle acts as a cautery, and prevents recurrence of granulation tissue.

Naevi of the skin of the lids are destroyed by inserting the electrolysis needle into one or two venules: coagulation follows rapidly.

If the electrolysis needle is used judiciously in the treatment of all these conditions (*i.e.*, weak current and short applications), no scarring of tissue should follow.

The method described above is used frequently by dermatologists, and this paper is an attempt to indicate its wider application in ophthalmology.

THE DIFFERENTIAL DIAGNOSIS OF ORBITAL GUMMA

BY

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THE differential diagnosis of retrobulbar tumours of the orbit is often very difficult. Frequently only an exophthalmos and secondary changes in the eyeball suggest the presence, deep in the orbit, of a pathological process which cannot be detected by inspection, or by palpation, or by X-rays. In such cases any auxiliary means of diagnosis which may help to clarify the question as to whether there is a benign or a malignant tumour, or a chronic inflammatory process, may certainly be welcomed. The piezometer, an apparatus, by which the displaceability of the eyeball into the orbit can be measured, is such an auxiliary aid to diagnosis. Meller repeatedly drew attention to this clinical method in the " Zeitschrift für Augenheilkunde," in 1933, and reported that Gutmann's piezometer had been used to great advantage for many years in all cases of retrobulbar tumours in the Vienna Clinic. I refer the reader to Gutmann's works (*e.g.*, Transactions of the Ophthalmological Society of the United Kingdom, 1934) for a detailed

description of the piezometer and confine myself here to those of its features which are necessary for the comprehension of my paper. The apparatus is built along the same lines as a tonometer and, like the latter, is placed on the cornea, after the application of holocaine or pantocaine, with the patient lying down. A weight of 25 grm. is placed on the footplate of the piezometer and an indicator which is attached to the plate, marks off on a scale in tenths of a millimetre how far the weight displaces the eyeball into the orbit. Gutmann and Freyler have obtained values for the piezometric displaceability of the globe into the orbit in a large number of cases of fibroma, sarcoma, carcinoma and angioma of the orbit. The results were typical for each different tumour. Thus far, however, sufficient well-founded piezometer values for the rather rare gummatous affections of the orbit are still lacking. Only one single case of orbital gumma has been measured by Freyler with the piezometer up till the present. Dependable values, of course, must be based on a larger number of cases. For this reason I made several measurements with the piezometer in the course of one case of a gummatous affection of the orbit and should like to report the values obtained as well as the case history.

A woman patient, aged 64 years, came to the clinic for the first time in December, 1934. After a period of months she admitted that she had acquired lues 34 years previously; at that time she suffered from a syphilitic exanthema, and had an early abortion and a still-birth in the seventh month; no living children. Only one course of antisyphilitic treatment was carried out. Until the appearance of the eye affection, *i.e.*, for a period of 34 years, she remained free from syphilitic afflictions.

Besides diplopia with vertical displacement the first examination did not disclose anything special. The visual acuity on both sides with + 1·0 D cyl., vertical was 5/15. Pupils on both sides slightly oval, but with normal reactions. Fundi normal. Wassermann reaction in blood: negative.

In August, 1935, there appeared a slight venous congestion in the left eye for the first time. This increased rapidly and in 4 weeks became intense. Simultaneously an exophthalmos set in on the left side and severe headache followed. An X-ray examination revealed normal findings as regards the bone but a slight shadowing of the left orbit, suggesting a coherent process. Nasal examination disclosed only a resection of the medial turbinated bone which had been performed in 1910; the sinuses were open. The neurological findings were normal. Apart from slight arteriosclerosis, nothing pathological was found generally; no symptoms of leukaemia or pseudo-leukaemia. The findings suggested a malignant tumour but in view of the history a course of treatments

by inunction was begun early in September. Approximately three weeks later, a slight improvement in the ophthalmic signs set in. At the end of five weeks, however, the patient was in a very bad general condition, suffering from weakness, dizziness and pains in the extremities; this form of treatment was given up and a series of treatments with spirobismol was started in the middle of October. The patient was given 5 intra-muscular injections of spirobismol. Under this treatment her general condition improved but the bulbar protrusion and the venous congestion remained uninfluenced, while the headache and facial pains became very severe. A definite sensitivity to pressure set in on the upper rim of the orbit. An orbital tumour was never palpable although a slight swelling could be felt for a short time on the upper rim of the orbit. On October 30, 1935, the vision on the left side had been reduced to 5/50; on the same day the first measurements of the piezometer displaceability and of the extra-orbital protrusion were taken. The extra-orbital protrusion amounted to: right 15 mm., left 20 mm; the piezometer values: right 14, left 11, *i.e.*, the globe on the healthy side could be displaced 1·4 mm., that on the affected side 1·1 mm., into the orbit. Normally the piezometer values for both eyes are the same. Therefore, there must have been a hard resistance to further displacement deep in the left orbit. On the basis of such a diminished piezometer value, an angioma for instance, whereby the displaceability is increased, can be eliminated from the diagnosis with certainty. In our case the differential diagnosis between tumour and gumma could only be decided *ex juvantibus*. The antisyphilitic treatment was continued in the form of a series of mercury injections beginning on November 30, 1935. The patient was given two intragluteal injections of 0·5 c.c. of 10 per cent hydr.salicyl. each week—altogether ten injections. Ten days later the extra-orbital protrusion on the left side had sunk 2 mm. to 18 mm. and the piezometer value of the affected eye was 9·5, *i.e.*, the displaceability of the affected eye had been further reduced. Two weeks later the left extra-orbital protrusion was reduced by 1 mm. to 17 mm. and the vision returned to the normal of 5/15. The pain and congestion diminished. In March, 1936, one month after the completion of the series of mercury injections, the exophthalmos on the left side amounted only to 1 mm., the congestion was limited to two episcleral veins and the vision was 5/15, as before the beginning of the affection. However, the piezometer value, which was checked several times, remained at 9·5; therefore an increasing induration in the tissue behind the globe must have taken place.

There can be practically no doubt concerning the diagnosis of syphilis in our case. The decision *ex juvantibus* alone is not

absolutely certain as there are so-called pseudo-tumours of the orbit arising in unspecific, chronically inflamed tissue which may respond to treatment with mercury. This group of pseudo-tumours, classified by Birch-Hirschfeld, has, however, been narrowed down by improved methods of diagnosis in favour of tuberculous and syphilitic new-growths. In view of the history the diagnosis of gumma in our case may be regarded as certain. The negative Wassermann reaction need not be regarded as contradictory for, according to Schönfeld's statistics in the handbook of dermatology by Arzt-Zieler, the Wassermann reaction is negative in as many as 30 per cent. of all cases of late syphilis and even in 40 per cent. of the cases of circumscribed late syphilis of the bones and joints. Furthermore sensitivity to pressure on the upper orbital margin (which was most definite in our case), pains in the region of the trigeminal nerve, and temporary disturbance of vision, which Birch-Hirschfeld attributes to a perineuritis of the optic nerve, are all symptoms of orbital syphilis.

Gummatous affections of the orbit are extremely rare. They amount to from 1 per cent. to 2 per cent. of all cases of syphilis of the eye and 0·013 per cent. of all diseases of the eye. An exhaustive list of all cases of orbital gumma up till 1907 has been compiled by Birch-Hirschfeld in the Graefe-Sämisch handbook. More recent literature may be found in Igersheimer's "Syphilis und Auge," in the chapter "Orbita" by Birch-Hirschfeld in Schick Brückner's handbook of ophthalmology, and in the "Zentralblatt für Ophthalmologie." Gummata can arise primarily in the orbit or they can spread into it from a sinus or a cranial bone. The predilectory localizations are the upper orbital margin and the roof of the orbit. In the majority of cases orbital gummata arise in the periosteum—periostitis orbitae gummosa—and affect the bones and contents of the orbit secondarily. Theoretically it is possible for gummata to arise in the interior of the orbit and spread out along the lymphatic apparatus or the muscles of the eye. Such cases, however, are extremely rare and uncertain. Up till the present only a very few cases have been examined anatomically. The Graefe-Sämisch handbook describes the findings in 5 autopsies performed on persons who died of orbital gumma with subsequent gummatous meningitis. The findings of 5 other histological examinations in the case of patients who were operated on as a result of the incorrect diagnosis of tumour are published in more recent literature (cases Werner, Raffin, Laricchia, Musical, Hirata). Periostitis gummosa orbitae usually follows a course analagous to that of periostitis luetica of the cranial bones. The gummatous process arising in the periosteum can spread into the bones and lead to softening and decay of the thin orbital wall. In cases which ended fatally this type of softening with subsequent

perforation into the interior of the cranium had taken place. Orbital gumma occurs in cases of both congenital and acquired syphilis. The earliest occurrence of this affliction observed was 8 weeks after the infection, the latest 30 years after the infection; in our case, as mentioned above, 34 years had elapsed since the infection.

The X-ray examination indicated that our patient was not affected by any pathological changes in the bones. The gummatous process must therefore have been present in the periorbita —which does not reveal any contrast effects by X-rays—as well as in the tissue in the interior of the orbit. At the time when the affection had reached its severest point, when the exophthalmos amounted to 5 mm., the registered piezometric displaceability of the afflicted eye was 0·25 mm. less than that of the healthy one. At the conclusion of the treatment when all other symptoms of the disease had disappeared and the exophthalmos amounted to only 1 mm., the piezometric displaceability of the afflicted eye was 0·4 mm. less than that of the healthy one. This clearly suggests that an induration and cicatrization had taken place in the retrobulbar connective tissue of the orbit and that the change was of the nature of a specific healing process since it accompanied an amelioration of the whole affection in response to antisyphilitic treatment. In the case of orbital gumma reported by Freyler there was an even greater reduction of the piezometric displaceability of the eyeball into the orbit, namely 0·6 mm. Meller found that a return of the bulbar displaceability to the normal before the recession of the exophthalmos (caused by oedema in the tissues) was indicative of the efficacy of the irradiation of malignant tumours; in an analogous manner we inferred the success of the antisyphilitic therapy in our case from (*inter alia*) a gradual reduction of the piezometric displaceability. Thus the piezometer is an accessory aid in judging the success of an antisyphilitic cure in such a case. The reaction of a luetic affection to a series of antisyphilitic treatments is not necessarily always prompt, a fact which may make it very difficult to decide between continuing the cure or operating; the piezometer may then afford valuable guidance. According to the experience gathered in our case, a diminishing piezometer value signifies a healing tendency; furthermore, it is possible that the efficacy of a course of treatments—and therewith the syphilitic nature of an affection—may be revealed by this earlier than by other retrograde symptoms. Naturally it is not possible to generalize from one case; therefore the publication of further piezometric examinations in cases of orbital gumma is desirable.

Summary

Gutmann's piezometer, an apparatus for measuring the displaceability of the eyeball into the orbit, may be used with success in the diagnosing of retrobulbar tumours. I examined one case of orbital gumma with the piezometer during the course of the affection and found that the displaceability of the globe into the orbit diminished during the healing of an orbital gumma and remained later permanently less than normal. Diminishing piezometer values during the course of an antisyphilitic cure indicate resorption and cicatrization of the pathological retrobulbar process, as expressed in the form of a fibrous induration, and contribute to the diagnosis of syphilis.

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SOME REMARKS ON OEDEMA

BY

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UTRECHT

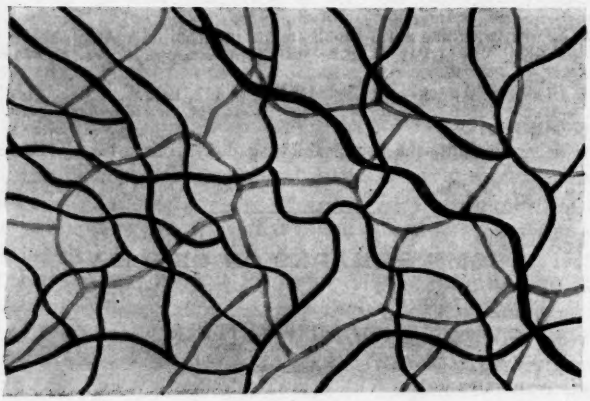
ALONG various roads attempts have been made to approach the origin and nature of inflammations. These investigations were often made in what might be called a "static" way, *i.e.*, an existing inflammation was thoroughly studied. That this manner of investigation was used so frequently may be due to the fact that in the days in which these problems were acute, not many other ways were available. Thus minute descriptions have been

given of the conditions which existed at a certain moment. One never sees what happens, only what has happened.

Now it seems attractive to follow a " dynamic " way, and after having produced an inflammation, to watch its course closely. At the same time an attempt should be made to understand something of the cause of what is happening.

Now inflammations may be produced in an endogenic and in an exogenic way. As a matter of fact all the inflammations of the eye can be grouped under these two headings. In experimental work the most preferable method is the exogenic one, and especially one of a non-bacteriological nature. I have been on the outlook for a substance by means of which it would be possible to produce an inflammation of practically always the same intensity. Making use of the experience gained in this field by Chiari and Januschke, I presently obtained satisfactory results with oleum sinapis. Oleum sinapis represents a group of substances which are able to produce inflammation, attended with chemosis. This chemosis dominates the clinical picture.

If one takes a rabbit and instills into its conjunctival sac some drops of oleum sinapis, one is able to watch closely the beginning of an inflammation by means of the slit-lamp. As a matter of fact besides a change in the circulation and later on a chemosis not



Conjunctiva (normal) of rabbit after intravenous injection of trypaflavin.

much else can be seen. The concentration and quantity of the drops merely influence the rate in which the symptoms arise.

Now the changes in the circulation which arise consist of a hyperaemia, a pericorneal injection and a widening of the pericorneal vessels. There is no disengagement of water from the

vessels to be seen. The problem of the origin of chemosis therefore cannot be solved by direct inspection.

Nor did previous research work, whether of anatomical (Wessely) or of a chemical nature bring any definite solution. The most remarkable thing which happens is the arising of chemosis. This chemosis shows a peculiar picture, one might assume that just as in the case of oedema, liquids had penetrated into the tissues. It appears however impossible to get hold of liquid whether by means of puncture or by incision, and even squeezing fails.

These phenomena appear to be analogous to those which may be obtained by injecting some liquid under the conjunctiva; one can never recover it, it has become incorporated with the surrounding tissue.

In the following experiments a different scheme has been followed namely that of vital-staining. In doing vital-staining and following the technique of Knussel and Vonwiller, one needs liquids of a concentration of at least 1 per cent. These solutions are strong enough to cause destruction of the tissues and in doing so, to change the picture entirely.

It was chiefly for this reason that I preferred to inject the staining matter directly into the blood of the rabbit, using for this purpose one of the veins of the ear. In this case good results may be obtained with much weaker concentrations, so that there is no danger of the structure of the tissues being changed. Moreover it has the great advantage of giving us an opportunity to watch the gradual appearance of the colour in the blood.

It is now possible to use liquids in very weak concentrations. I made use of solutions of fluorescein and of trypaflavin. Now fluorescein can be seen in a concentration of 1/800,000,000, and trypaflavin in a concentration of 1/1,000,000,000. The fluorescein is of course only visible if a source of light is used, which contains a good deal of ultra-violet light.

An arc-light was used with effect carbon points, a circuit of 6 amp. quartz glasses and Uvet filters.

The conjunctiva of a normal rabbit was studied in this light by means of a slit-lamp. Then an intravenous injection was made in the ear of the animal with fluorescein, 40 m.g. pro kilo. weight. Now the blood vessel can be seen beautifully by fluorescence. An appearance of the colour from these vessels cannot be seen. It seems however that there is a kind of coloured cylinder round the vessels. If one now produces a chemosis by the instillation of some drops of oleum sinapis, no change in this picture can be observed.

Using trypaflavin instead of fluorescein one gets quite different results. If one takes a rabbit with normal conjunctivae and injects into one of the veins of its ear a solution of trypaflavin containing

30 m.g. pro kilo. no fluorescence of the bloods vessels is to be seen. A kind of meshwork however may be observed which previously could not be seen, which shows no connections with the blood vessels (see illustration). After instillation of oleum sinapis into the conjunctival sac this meshwork now becomes so plain that it can be seen macroscopically, if examined in ultra-violet light. It is impossible to see any liquid appearing from the blood vessels or to discover any connection between the blood vessels and this meshwork. The more pronounced the chemosis becomes the plainer this meshwork becomes and when the chemosis disappears again the meshwork also disappears. One gets the impression that it lasts a little longer than the chemosis.

From these experiments it appears that in inflammations the normal circulation of the blood is disturbed. This may be observed without vital staining and is in agreement with what has been written by various authors. The vital staining, however, also reveals a change in the circulation of the lymph. The nature of this change is opposite to that of the blood circulation. In vital staining, however, we see an increase in the afferent current, while the former shows an increase in the efferent current. This is evident from the fact that on the increase of the chemosis the lymph vessels become clearly visible. Now in inflammation there happens to be an increase in the permeability of the vessels. This causes liquid to leave the vessels; and this liquid appears incapable of re-entering them. It is through the lymph vessels that this liquid leaves the tissues again. Now the capacity of the lymph vessels appears to be insufficient to digest the total supply at once and this causes the clinical picture of the chemosis.

Two questions arise: Firstly. Where does the trypaflavin remain from the moment it leaves the blood vessels until the moment it becomes visible in the lymph vessels? It must be in the tissues between these vessels and in a very strongly diluted condition. Firstly pro time unit only a small quantity leaves the vessels, this is spread in the tissues. Now the question arises: " By what power is the trypaflavin moved into the direction of the lymph vessels?" Apparently by a property which is shown by the trypaflavin and not by fluorescein. And this leads up to the second question: " Why can the lymph vessels be observed after injection of trypaflavin and not after an injection of fluorescein?"

From the experiments of F. P. Fischer, Witgenstein and Krebs, Witgenstein and Gaedertz, Ellinger and Hirt it is known that in the blood fluorescein is charged positively and trypaflavin negatively. This implies that they are attracted c.q. repelled by tissues, having an opposite, resp. equal charge. From the experiments of Nistler it is known that lymph vessels are positively charged. I think that this can explain satisfactorily the tendency

on the part of the trypaflavin to move into the direction of the lymph vessels and also why there is not such a thing in the case of fluorescein. Not much has been written about the lymph vessels of the conjunctiva. There is just one paper by Knüssel and Vonwiller, who succeeded in making the lymph vessels visible by staining with kresyviolet. This stain is also charged negatively in the blood. Furthermore Cuénod and Nataf (*Bull. Soc. d' Ophtal. de France,* 1934) show a picture which is also from Knüssel and Vonwiller in which some lymph vessels can be seen which are similar to those mentioned above. The method described in this paper is much more sensitive than any used previously.

THE CLINICAL VALUE OF TRYPTOPHANE-REACTION

BY

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UTRECHT

A NUMBER of papers on the importance of the tryptophane-reaction in the diagnosis of meningitis tuberculosa has lately been published in various medical journals. A list of these papers was drawn up at the close of an article in the *Zeitschr. f. Kinderheilk.*, Bd. LVI, Hft. 6, 1934, by H. M. Schumacher, who concluded that in every case of meningitis tuberculosa the reaction is positive, whereas it is invariably negative in any other case in which the liquor is not very cloudy or bloody or purulent.

In view of the close affinity between aqueous and liquor cerebri it would seem interesting to trace the course of this reaction on the aqueous in cases of ophthalmic tuberculosis, especially as a reaction quickly showing whether a process is of a tuberculous nature or not, would surely be useful for clinical purposes.

The tryptophane reaction is a simple one and does not present any serious practical difficulties; but ophthalmologists are a ways somewhat hampered by the exiguous quantity of the material available. Consequently in the first place it was necessary to ascertain whether the reaction could still be performed with a quantity of liquid of not more than 0·1 c.c. This limit has been set, as puncture of the anterior chamber always yields this minimum quantity. In the second place the degree of sensitiveness of the reaction must be made sure of, and therefore various solutions of pure tryptophane

were made and on these the reaction was performed. A quantity of 10/1000 m.g. appeared to be demonstrable in 0·1 c.c. of liquid.

The reaction is performed as follows: 1·5 c.c. concentrated hydrochloric acid are added to a quantity from 0·1 to 0·2 c.c. aqueous; followed by one drop of 2 per cent. solution of formalin; the mixture is shaken once.

Next the solution should be allowed to stand for five minutes, after which a thin layer of 0·2 c.c. of a 0·6 per cent. solution of nitrate of sodium should be carefully added. After 2 or 3 minutes a violet ring will appear at the point of contact of the two liquids, at least when the reaction is positive. The solution of formalin should be prepared fresh for each day.

If the aqueous is normal the reaction is always negative both for rabbits and men.

I next inoculated the anterior chamber of rabbits with tubercle bacilli, performing also reactions with other species of bacilli for control purposes. A detailed description of these experiments appears superfluous, as in all cases of reactive inflammation the reaction proved positive. Therefore it seems that this reaction cannot be considered specific to tuberculosis, as the result of every reactive inflammation effected by me turned out positive.

The rabbits were subjected to prolonged clinical observation and the reaction was invariably found to be positive when the slit-lamp no longer revealed any symptoms of inflammation. Consequently it was out of the question to explain the positive reaction as being caused by the presence of additional blood or leucocytes. Neither could there exist any direct relation with the albumen percentage in the anterior chamber, as was proved by the cases in which the Tyndall-phenomenon in the aqueous was already entirely negative, whereas the reaction always turned out positive.

In explanation of the fact of the tryptophane-reaction being positive the following possibilities suggest themselves: Tryptophane could arise through the decomposition of containing tryptophane albumen, normally existing in the eye. Secondly the tryptophane might have been introduced by the blood. This could only be possible if the permeability of the capillaries should have become temporarily increased. The following experiments were performed in order to determine the necessary data:

In the first place the demonstrability of tryptophane in the blood-serum of rabbits was successfully ascertained: the albumen-fraction invariably contained tryptophane.

After puncture of the anterior chamber of a rabbit's eye normal aqueous, as has already been stated, always produces a negative reaction. After a second puncture one hour later, the reaction of this aqueous which contains a very considerable albumen-fraction is positive. It is well known that the albumen in the "second aqueous"

is derived from the blood. By the first puncture the capillaries become permeable to albumen, as has been shown by Wessely, who, before the first puncture, injected adrenalin under the conjunctiva, with the result that the albumen-percentage did not show any increase. I have repeated this experiment but the tryptophane-reaction proved positive notwithstanding the negative albumen-reaction. From this may be concluded, in the first place: that the positive tryptophane-reaction is dependent on the albumen-percentage. Neri (in *Rass. stud. psych.*, Vol. XXIII, p. 1139, 1934) stated the opposite. In the second place the tryptophane-reaction might be assumed to be a particularly sensitive test of the permeability of the capillaries, even more than Kikai's staining reaction (*Arch. f. Augenheilk.*, Vol. CIII). This is in complete concurrence with the fact that the tryptophane-reaction still appeared positive when the slit-lamp revealed the optical emptiness of the anterior chamber. It is a well-known fact that the permeability of the capillaries is chiefly determined by two factors: by the size of the particles and by their charge. These experiments therefore show that the size of the particles must be equal to or smaller than that of eosin and similarly charged. Theoretically there is an essential difference between these experiments and those in which extraneous substances as *e.g.*, stains, are injected into the blood in order to test the permeability of the vessel. In the present instance a substance is used which normally exists in the circulation, so that objections which might otherwise be raised are removed beforehand.

Availing myself of the peculiar qualities of the tryptophane-reaction in this respect I have renewed the experiments related previously, concerning artificially generated oedema of the conjunctiva. During preliminary experiments the conjunctivae of rabbits, after being extirpated, were pounded in a mortar and a small quantity of distilled water was subsequently added. Allowing the liquid to stand for some time I performed the tryptophane-reaction on it. This reaction was always negative. When oedema was first artificially generated and next the conjunctiva subjected to the same treatment the reaction appeared to turn out positive. Naturally great care was taken to keep the extirpated conjunctiva free from blood-vessels, which owing to the anatomical relations of the conjunctiva did not offer peculiar difficulties. Thus the fact that artificially generated oedema increases the permeability of the vessels of the conjunctiva could be demonstrated.

Summarizing we may conclude that the tryptophane-reaction has been proved to be not a specific test of tuberculosis, but a very sensitive indication of the increased permeability of the capillaries. Moreover an advantage of the reaction is that it allows us to demonstrate increased permeability by means of a substance normally existing in the circulation.

ABSTRACTS

I.—RETINA

(1) **Weekers, L. (Liège). — Laboratory notes concerning the operative treatment of retinal detachment. (Enseignements de laboratoire concernant le traitment opératoire du décollement rétinien).** *Arch. d'Ophtal.*, Vol. LII, p. 636, 1935.

(1) **Weekers**, in a long paper, describes the results and significance of some laboratory investigations which he has made in connection with the surgical treatment of retinal detachment. Histological study of sections through sites of galvano- and thermo-cautery punctures of the globe and punctures made with a fine Graefe knife, show that the episcleral tissues play a considerable part in establishing union with the retina through the medium of a plug of organizing granulation tissue which extends from the episclera to a short distance into the vitreous beyond the level of the inner surface of the retina. The choroid and sclera appear to play no part in the establishment of this link of granulation tissue. Indeed there is often to be seen a clear space filled with lymph between the plug of granulation tissue and the adjacent choroid and sclera at the site of the puncture. The author's experiments on rabbits proved the fact that the retina was adherent to the globe at the site of the punctures made by a Graefe knife or the thermo- and galvano-cautery but might be detached elsewhere.

He regards this adhesion between the retina and the episcleral tissues as an essential factor to surgical success in the treatment of retinal detachment.

With this object in view, he now practises surface thermo-coagulation using a galvano-cautery with a very fine terminal heated sufficiently to penetrate the sclera down to but not through the choroid. A nmber of points are thus made over the site of the retinal hole. The globe is then punctured with a fine ground down Graefe knife in several places through these cauterised areas and the inter-retinal fluid evacuated.

The author believes that widespread irritation of the choroid leads to hyperaemia of that structure, excessive exudation and to augmentation of the inter-retinal fluid.

H. B. STALLARD.

(2) **Smaltino (Naples).—A case of glioma of the retina cured by X-rays. (Considerazioni sopra un caso di glioma della retina guarita con la radioterapia).** *Boll. d'Ocul.*, May, 1936.

(2) The patient was a boy aged 6 years; both eyes were attacked. The child showed a positive Wassermann reaction and the

diagnosis of the eye condition was doubtful; it improved for a time under anti-syphilitic treatment; but eventually relapsed.

Small white nodules appeared on the iris of the right eye and the diagnosis of glioma was clear. Excision of this eye which had been proposed before but rejected by the parents was now performed. Microscopical examination confirmed the diagnosis; the left eye showed a large detachment of the retina greyish in colour with many superficial folds. After the excision, both sides of the head were treated by X-rays; the left retina returned to place, leaving a large grey patch. Near this were many smaller patches which seemed to be scar tissue in the place of the former glioma nodules. This eye has remained good up to the present time; the boy has been under observation throughout.

HAROLD GRIMSDALE.

(3) **Mecca (Sassari).—Retinitis pigmentosa.** *Ann. di Ottal.*, March and April, 1936.

(3) In this long and interesting paper, **Mecca** summarises the various views held on the causation of retinitis pigmentosa and gives an account of five cases which have been under his care. He has come to the conclusion that the chief and immediate cause of the disease is to be found in continued spasm of the arteries, and that this is due to disturbance of some one or more of the endocrine glands. He lays stress on the necessity of complete general examination of each patient in order that the basal lesion may be discovered; in the series of cases which he records, the author claims that he has been able to relieve the conditions to a considerable extent and to bring about at least a temporary suspension of loss by the use of vaso-dilatators.

He has used injections of acetylcholine and has observed in some cases marked improvement both of the visual acuity and the field; it is natural that the benefit was greatest in those cases which were least advanced.

Further, he has made experiments by injecting vaso-constrictors continually into animals and has been able to produce appearances in part similar to those of retinitis pigmentosa.

HAROLD GRIMSDALE.

(4) **Lo Cascio and Friedmann (Padua).—The action of light on the amount of aminocaids in the retina. (Azione della luce sul contenuto di aminoacidi della retina).** *Ann. di Ottal.*, May, 1936.

(4) This paper contains the results of experiments in which the eyes of rabbits which had been confined in darkness, were compared with those of others which had been exposed to light.

It was found that the amount of aminoacids in the latter group was slightly less than in the former retinae. It is known that aminoacids tend to split up under the action of light; Rosch and Te Kamp have shown that under the action of light ammonia separates from the retina in larger quantity than forms in dark adaptation.

HAROLD GRIMSDALE.

II.—MISCELLANEOUS

(1) **Campbell, Edward H. (Philadelphia).—Relationship of sinusitis to optic and retrobulbar neuritis with special reference to etiology and treatment.** *Arch. of Ophthal.*, Vol XVI, p. 236, 1936.

(1) Campbell's article provides a useful resumé of current views as to the aetiology and treatment of retrobulbar neuritis. Using this term in its widest sense, he states that the condition may be due to the following causes, arranged in the order of their importance:

1. Disseminated sclerosis. 2. Toxic conditions. 3. Tumours or cysts of the basal portion of the frontal lobe. 4. Acute infectious diseases. 5. Focal infection. 6. Syphilis. 7. Metabolic disturbances (*e.g.* diabetes; anaemia.) 8. Lactation. 9. Tuberculosis. 10. Leber's disease. The association of retrobulbar neuritis with sinus disease has various pros and cons. Among the "pros" may be mentioned: (1) that operation on the posterior sinuses greatly benefits the condition; (2) the researches of Onodi and others have shown the close association which can exist between the optic nerve and the sinuses, and in particular the manner in which the optic canal can be encroached upon and narrowed by the sinus cells. Among the "cons" are the following observations: (1) Although sinus infections are far commoner in children than in adults the reverse is the case with regard to retrobulbar neuritis; (2) It has been repeatedly observed that no gross pathological change has been found in the sinuses opened, even though cure of the neuritis followed the operation; (3) Lillie, in a report on 225 cases of retrobulbar and optic neuritis at the Mayo Clinic, included only one case in which the condition was actually due to sinusitis. These observations have some bearing on treatment. Since the causes are so manifold, a careful and searching examination must be made by those capable of dealing with them. While this is being carried out the author recommends the promotion of sweating by physical means, drugs

or the injection of foreign protein, and nasal treatment by ephedrine sprays, irrigation with hot saline or application of mild silver protein tampons. If a purulent condition is found in the sinuses it should be dealt with and any obvious focal sepsis in the teeth or tonsils should be eradicated. If complete blindness occurs, or there are signs of optic nerve atrophy, the author would feel inclined to advocate opening even apparently normal posterior sinuses in the hope of bringing about some improvement.

F. A. W-N.

(2) **Bracci-Torsi (Pisa).—A case of cyst of the iris. (Contributo clinico ed istologico alle cisti dell'iride).** *Ann. di Ottal.*, January, 1935.

(2) **Bracci-Torsi** gives the history of a case of cyst of the iris which was watched for many years. In 1917, the patient was struck in the right eye by a piece of ice which made a perforating wound, with prolapse of the iris and partial traumatic cataract. The vision was with +9·0 D. sph., 1/50. Seen again in 1927, there was noted a brown mass in the part of the pupillary border adherent to the cornea and apparently arising from the posterior surface.

This gradually increased in size, and changed colour, becoming paler. In 1932 the patient complained of severe pain and it was found that the cyst completely filled the anterior chamber, giving rise to secondary glaucoma. A first operation, by which a part of the cyst was removed, gave only temporary relief; Lagrange's sclerectomy was completely successful.

Microscopical examination of the cyst wall showed that it was made up of two parts; the central seemed to be slightly altered iris tissue, the peripheral consisted of one of two layers of endothelial cells. The author thinks that the iris was dragged into folds by its adhesion to the cornea, and that these folds became converted into a closed sac into which fluid was secreted by the iris, distending it until it filled the anterior chamber.

He points the moral that an early intervention is desirable to prevent the onset of glaucoma.

HAROLD GRIMSDALE.

(3) **Yanes, T. R. (Habana, Cuba).—Ocular accidents in one-eyed workmen (a question of legal medicine). (Los accidentes oculares en obreros monoftalmos. Una cuestion de Medicina Legal).** *Rev. Cubana de Oto.-Neuro.-Oftal.*, Vol. V, No. 2, March-April, 1936.

(3) **Yanes** has been studying ocular injuries in workmen, who have previously lost one eye and have received an accident to the remaining useful eye. These workmen, even if they may not

be left with any disability, always give greater trouble during treatment, because if the affected eye is occluded they are practically blind, and it is necessary at times to admit them into hospital, when it would not have been necessary if the sight of the other eye had been preserved.

But the problem is greater, when some disability, partial or total, results from the injury. The responsibility of the employer and the insurance company is discussed in those cases, which lose the sight of their only eye.

The Cuban laws lay down that the loss of an eye leaves a permanent disability, which varies from 25 per cent. to 50 per cent., according to the degree of skilled work. But no differentiation is made between two-eyed and one-eyed workmen. The author thinks that if the only eye is lost the company ought not to pay total compensation of 100 per cent. which would correspond to total disability through the workmen being left definitely blind. Nor does he think that they ought to pay compensation corresponding to the disability produced by the loss of one eye.

He expresses the opinion that if the workman was working with his only eye, his capacity was not 100 per cent., but that it was less, and if the loss of one eye reduces it by 30 per cent. in ordinary daily labourers (bricklayers, farm labourers, etc.), the capacity of the workman at the moment of the accident must be 70 per cent. It is this amount he loses by the accident and it is this which in all cases the employer ought to pay and not total compensation, because the workman is completely useless after the accident. If this were so, one-eyed people would not find work easily, for then the insurance companies would not grant policies for monocular workers. The ideal would be that the employer should pay for the damaged eye, and the state the remainder, as occurs in the State of New York, where there is a public fund for this purpose. The laws of different countries on this point, which the author has studied, are incomplete and insufficient, which explains the diversity of different legal judgments given in these problems.

E. E. CASS.

(4) **Contino (Messina).—Workmen's compensation for loss of vision. (Perdita funzionale e danno lavorativo negli infortuni oculari).** *Ann. di Ottal.*, February, 1936.

(4) Since the law recognises the necessity of compensating workmen for injuries which interfere with their capacity of earning, it becomes necessary to calculate the loss of ability for any loss of vision. Generally speaking, full visual acuity (6/6) is not required in any trade, and therefore small losses may be borne

without lessening capacity. On the other hand vision below 1/10 of normal (6/60) is not generally sufficient to carry on any trade usually requiring sight.

Between these two conditions lies the region in which compensation is difficult to assess. It has been generally agreed that the total loss of one eye is equivalent to the loss of 35 per cent. earning power; total loss of both to 100 per cent.

Contino points out that those schemes which have proposed an arithmetical progression in increase of disability corresponding with an arithmetical increase of loss, are faulty since in the lower ranges of vision a small loss is more important than when acuity is normal. He therefore proposes a geometrical increasing progression.

His scheme, which is simple, is to multiply 35 in the case of one eye (or 100 if both are damaged equally) by the square of the fraction of normal vision which is retained. Thus if a man has lost acuity in one eye only and has 6/12 (0·5 of normal), his estimated deficiency would be $35 \times (\frac{1}{2})^2 = 8{\cdot}75$ per cent. Since in Italy no compensation is given when the loss is less than 11 per cent., no compensation would be allowable in this case. If then the second eye had been damaged so as to reduce its vision to 6/24 (0·25 of normal), the loss would be represented by $65 \times (\frac{1}{4})^2 = 4$ per cent. and the total damage 12·75 per cent. would demand compensation.

The scheme is simple and easy to remember, and probably gives as fair treatment as is possible for any hard and fast arithmetical scheme.

HAROLD GRIMSDALE.

(5) **Yanes, T. R. (Habana).—The use of gloves in ocular surgery. (El uso de guantes en cirugia ocular).** *Rev. Cubana de Oto.-Neuro.-Oftal.*, Vol. IV, No. 5-6, September-December, 1936.

(5) Yanes thinks that it is a bad custom, practised by many surgeons, not to use gloves in ocular operations, especially in operations for cataract and glaucoma. (Elliot, Lagrange, etc.)

All the alleged reasons for not using gloves whilst operating (tactile sensitivity, that the fields of operation is not touched, etc.) originate largely from the care, which is taken during operation, in not allowing the ends of the instruments which must enter the eye, such as the iris repositor, capsular forceps, etc., to be exposed to the touch. Therefore, and as in the matter of sterilization nothing ought to be neglected. The author performs all his operations with sterilized rubber gloves, in the same way that is

practised in some ophthalmic clinics, for example in the Ophthalmological Institute of Central Medicine in New York. He is convinced of their usefulness, although he admits, as is natural that he cannot entirely eliminate the problem of operative infection, but he knows that his statistics have been more satisfactory.

E. E. CASS.

(6) **Marchesini and Ghio (Genoa).—Investigation of the orbit by means of injections of substances opaque to X-rays. (Indagine radiografica della piramide orbitaria mediante l'introduzine di sostanze X-opache).** *Ann. di Ottal.*, September, 1935.

(6) **Marchesini and Ghio** have tried to discover some substance, opaque to X-rays, which may be injected into the orbit without exciting irritation. They have experimented with various preparations, in some of which the opacity is due to the contained iodine; these they found unsatisfactory.

A thorium preparation, "thorotrast," they found to be well borne by the tissues and to give a satisfactory shadow. Most of their experiments were carried out on rabbits, but in one instance they tried the method in man, and found that the outline of the globe was well indicated by the shadow; the opaque substance remained for a long time with little change; two years after the injection the shadow was still visible though less intense. In another patient the attempt at injection was immediately followed by much pain and the proceeding was stopped. The authors think that this method will be of value in localising tumours deep in the orbit, and indicating their extent.

HAROLD GRIMSDALE.

(7) **Villani (Rome).—Influence of diathermy on intra-ocular tension. (Azione della diatermia sulla tensione oculare).** *Boll. d'Ocul.*, February, 1935,

(7) Little attention has been paid to the action of diathermy on intra-ocular tension, and the reports thereon have been by no means unanimous. **Villani** has applied diathermy to a number of eyes both in health and disease and has noted changes in the tension. He finds that there is always an early reduction of tension, sometimes considerable, but temporary only, so that after a short time it returns to the original height, but does not rise above this. The fall lasts only some 20 minutes but may be prolonged by a second application of diathermy. In glaucoma, repeated sittings of 15 to 20 minutes, with current of 300 to 600 milliampères have brought about a lasting reduction of tension.

The author thinks that the action depends on the dilatation of the efferent vessels under the influence of heat, but adds that there may be some stimulation of the sympathetic nerve fibres reducing the secretion of the ciliary body and the size of the pupil, at least in some cases.

HAROLD GRIMSDALE.

(8) **De Sanctis (Parma).—Treatment of prolapse of iris by diathermo-coagulation. (La diatermocoagulazione nei prolassi dell'iride).** *Boll. d'Ocul.*, April, 1936.

(8) **De Sanctis** has made experiments on prolapses produced in rabbits, destroying the iris tissue by means of diathermy. He finds that by this treatment he obtains a flat and resistent scar, but that the anterior synechia persists. He concludes that in the case of a recent prolapse, excision is the best treatment, but when the prolapse is older, it will not be possible to prevent anterior synechiae by an excision and thinks that in diathermy we have a safe means of destroying the prolapse and making a scar which is unlikely to be followed by sympathetic trouble.

HAROLD GRIMSDALE.

(9) **Torgersruud, T.—Some cases of naevus of the conjunctiva. (Quelques cas de naevus de la conjunctivite).** *Acta Ophthal.*, Vol. XIII, p. 77, 1935.

(9) In discussing nine cases of conjunctival naevus under his observation, **Torgersruud** gives a useful review of the literature on the subject. He stresses the relative frequency of the new formations, their frequently non-pigmentary nature and the fact that they are to be regarded as of congenital origin, even if they make their appearance later in life. They are to be considered in the differential diagnosis of any swelling of the conjunctiva. In children and young adults their progress should be watched; in the elderly they should be excised as malignancy is to be feared. The dangers of radium treatment are emphasised by the recital of a case history relating to a boy aged 7 years, in whom the suspicion of melano-sarcoma had led to radium therapy. The lens became opaque and ultimately it was found histologically that the mass was a naevus, which could easily have been removed surgically without damage to the eye.

ARNOLD SORSBY.

(10) **Kiewe, P. (Geneva).—Chalazion-like recurrent tumour of the lid. (Ueber eine rezidivierende, unter dem Bilde eines Chalazions auftretende Geschwulst der Lider).** *Acta Ophthal.*, Vol. XIII, p. 139, 1935.

(10) **Kiewe** reports a case of chalazion in a man aged 57 years; within the space of six months the mass was removed three times,

on the last occasion with its capsule intact. Histologically no definite diagnosis could be made, and for want of a better designation, the mass was considered as similar to the inflammatory pseudo-tumours described by pathologists. Volterra's modification of the Cajal silver impregnation method showed extensive argentophile quality of the protoplasm, though the tumour could not be regarded as belonging to the reticulo-endothelial group.

ARNOLD SORSBY.

(11) **Kyrieleis, Werner (Hamburg).—Researches on papilloedema. (Untersuchungen ueber Stauungspapille).** *Arch. f. Ophthal.*, Vol. CXXXV, p. 100.

(11) **Kyrieleis** here records a study of the effects of compression of the optic nerve at different levels by ligature or clamp. Ligature of the nerve within the skull produced no changes in the papilla.

Compression within the orbit behind the entrance of the central vessels caused slight swelling of the optic nerve distal to the site of ligature, slight blurring of the edge of the optic disc without swelling, changes which are attributed to obstruction of the lymph stream in the nerve.

On constriction of the nerve involving the central vessels (the vein being more compressed than the artery) the swelling of the nerve stem anterior to the ligature was more marked, the blurring of the disc greater, and haemorrhages appeared at its margin; in one case a definite choked disc developed, the swelling fading gradually into the surrounding retina. The oedema so produced was almost certainly due to venous stasis, which also caused the haemorrhages.

All changes observed clinically and anatomically in the peripheral part of the optic nerve after compression within the orbit were the result of stasis (Stauung) in the lymph stream and the vein.

These findings, however, could not offer a reliable guide in explanation of the papilloedema in increased intracranial pressure, as in this series of experiments that factor was absent.

The author emphasises the essential difference between the swelling of the optic disc from a peripheral cause (without a rise in intracranial pressure) and that due to increased intracranial pressure. The former may arise from venous stasis, or abnormal permeability of the vessel walls from vasomotor or osmotic disturbances, or obstruction of the tissue fluid, all mainly passive factors situated in the eye itself; the latter, on the other hand, is the result of an active force outside the eyeball.

THOS. SNOWBALL.

BOOK NOTICES

Trachoma. By A. F. MACCALLAN, C.B.E. Pp. 225, 8vo, with 19 illustrations and a chart. London: Butterworth & Co. 1936. Price, £1 1s.

This book embodies the author's Hunterian Lecture at the Royal College of Surgeons of England in the spring of this year, and is intended to take the place of the much smaller but admirable book which he published in 1913, at the Cambridge University Press. The latter has been out of print for some years and the time was ripe for a further book on the subject of trachoma, on account of the vast amount of work which has been done and the enormous literature that has sprung up as a result during the last decade.

Slit-lamp microscopy has enabled us to be more definite in our diagnosis of early pannus than was the case 20 odd years ago. The formation of the League against Trachoma and of its special organ La Revue du Trachome are both of comparatively recent development, as is the bacteriological work to which Noguchi and his bacillus granulosis gave rise. In this respect it is of interest to remember that Wilson was unable to find the bacillus granulosis in cases of Egyptian trachoma; and his attempts to induce trachoma from cultures received from the Rockefeller Institute were negative in monkeys and in the human subject.

No one could have sifted the great mass of the literature so well, or have written so authoritative a work on this subject as Mr. MacCallan and we feel sure that the book under review will take its place among the professional classics.

The book is composed of nine chapters. These include an introduction, and chapters on clinical manifestations, sequelae, complications, differential diagnosis, treatment, pathological anatomy, epidemiology, and historical. Every aspect of trachoma receives adequate attention; of special excellence are the illustrations, most of which are in colour, and admirably portray the naked-eye and slit-lamp appearances of the conjunctiva and cornea. The plates lent by Cuénod and Nataf of normal conjunctiva and acute conjunctivitis are very good and there are some beautiful reproductions of paintings by Wilson. The microphotographs in the chapter on pathological anatomy also deserve mention. The author's Trachoma will be an indispensable book for all ophthalmic surgeons who practise in trachomatous countries and we expect that there will be a large demand for it.

Das Augenzittern der Bergleute. By DR. ERICH ZEISS, of Wurtzburg. Pp. 120. R.M.-7.

This is the fourth number of a series of monographs on Industrial Medicine under the general editorship of Drs. Bader, Bauer and Holstein. It is the outcome of an investigation ordered by the Reich Minister of Health and carried out in Westphalia during the years 1930-32.

In a foreword Dr. Bartels says that the results of this investigation show that miners' nystagmus can and must be banned and that no consideration of expense, in view of the millions of marks the disease costs, should hold.

Dr. Zeiss stresses the importance of collaboration between mining officials and the medical officers concerned. Statistics show that the incidence of the disease rises with unemployment. In one district the number of cases had risen from 31 in 1923, to 2,000 in 1933, an interesting side light of the great industrial unrest in Germany in those years.

The investigation included the examination of patients and of the working conditions underground. Photographs of underground flood lighting with photometric measurements are given. Special attention has been paid to the analysis of mine gases and Zeiss quotes with approval the work of the English observers Robson and Lane who hold that the incidence of the disease varies with the character and especially with the volatility of the coal.

The incidence of the disease varies greatly in pits with equal lighting and Zeiss holds strongly that deficient lighting, although important, is not the sole cause of the disease.

The assessment of incapacity evidently gives as much trouble in Germany as in England and Zeiss complains that experienced medical men give different opinions as to the man's capacity for work in the same cases. Miner's nystagmus follows no set course.

Dr. Zeiss's recommendations may be summarised:—

1. Establishment of ophthalmic clinics with special attention to cinematograph representations of the oscillatory curves.
2. Further investigations into underground lighting and atmospheric conditions. Experiments with animals in darkness.
3. The microscopical examination of the brain. Little or nothing has been done in this direction.
4. Further physiological study of dark and light adaptation.
5. Investigation in mines other than coal mines.

Underground working conditions are strange to most ophthalmic surgeons and it is essential that they should work in the closest touch with mining officials.

In this manner alone can preventive measures be carried out. The solution of the problem will be of immense benefit to the workers, industry and State. T. L. LLEWELLYN.

Detachment of the Retina. By H. ARRUGA, translated by R. CASTROVIEJO. Pp. 137, illustrations, 226. London: H. K. Lewis & Co. 1936. Price, £5.

The author has set out to present in a practical manner the salient features in regard to modern conceptions on the aetiology, pathogenesis, pathology, symptomatology, clinical varieties and their course, the treatment, complications, results and prognosis of retinal detachment. His work represents the fruits of his labours on some 700 cases of this disorder. The book is profusely illustrated with many coloured fundus paintings, a number of which have been artistically executed by the author himself. An immense amount of information is to be gained by studying these plates alone for they illustrate a wide range of the clinical varieties of retinal detachment and retinal tears.

The text makes easy reading for it concerns mainly clinical and practical points of interest. There are several interesting examples which bear out the importance of repeated and careful investigations to find a retinal tear. In some cases a latent tear became obvious on re-examination of the fundus under altered postural conditions, after rest in bed, after evacuation of the sub-retinal fluid and by ophthalmoscopic examination during the course of an operation.

The author describes the various operations for retinal detachment but unfortunately refrains from extensive comment on the relative value of these procedures and the type of case in which they are each indicated.

He remarks on the difficulty of supplying statistics of operative results on account of the large number of clinical variations in retinal detachments and their associated intra-ocular lesions. As a general principle it would seem from the author's statistics that successful operative treatment varies inversely with the duration of the detachment. There are, however, exceptions. It is evident that he has had particularly good results (65-85 per cent.) from operating on cases of less than 28 days duration.

The book is well produced, the paper, print, coloured illustrations, photographs and drawings of surgical procedures are all excellent. One flaw in the edition translated into English is the large number of mispelt words. Subsequent editions will require some careful proof correcting to eliminate so many faults. One in particular is liable to be dangerously misleading. In the section on electrolysis by means of the perforating kathode the intensity

of the current is stated as 200 milliampères for 5 seconds. As it is rare to use more than 2 milliampères for this work the reviewer concludes that a decimal point has been omitted after the 2.

It is a book that will be welcomed by ophthalmologists throughout the world for it is rich in matter of practical interest to the surgeon and clinician. The author is to be congratulated on such an artistic and useful production.

Der Augenbefund in seiner diagnostichen und differentialdiagnostichen Bedeutung bei Tabes Dorsalis, Lues Cerebrospinalis, Multiplier Sklerose. By PROFESSOR DR. CARL BEHR. Pp. 60, with 14 plates. Berlin: S. Karger. 1936. Price, R.M. 7.60 (abroad) R.M. 5.70.

Unlike most supplements to the Zeitschrift für Augenheilkunde, of which the present contribution on The Eye in Tabes, Cerebrospinal Syphilis and Disseminated Sclerosis, by Carl Behr, is the twenty-first of the series, this monograph is based not on personal work, but on a series of post-graduate lectures. In concise and clear language, an excellent summary is given of the current teaching on the subject. There is little that departs from strict orthodoxy, but as is to be expected, many observations for which Behr himself was not responsible are incorporated and help to make the picture more complete. Much that is purely of text-book value and has no better justification than tradition, is here omitted. It is thus that no significance is attached to a supposedly characteristic type of nystagmus in disseminated sclerosis. Behr's teaching on pupillary reactions is well illustrated in an excellent diagram. His insistence on the differential diagnosis of the true Argyll Robertson from the pseudo reaction is a welcome recognition of the work largely done in this country.

Amongst other points of interest is the tvpe of field defect that he describes as characteristic of retro-bulbar neuritis following sinus infection. He points out that in addition to the central scotoma there is a large peripheral defect with a stalk-like extension to the central defect. The resulting combined scotomatous areas make an impressive picture.

Squint Training. By M. A. PUGH, M.R.C.S., L.R.C.P., Medical Officer in Charge of the Orthoptic Department, Royal London Ophthalmic Hospital. Pp. 111, illustrations, 42. Oxford University Press. 1936. Price, 7s. 6d.

During recent years orthoptic training for cases of strabismus, heterophoria and convergence insufficiency has received particular attention. Hitherto, it has been difficult for ophthalmologists whose experience of these cases is of necessity limited to assess the

true worth of orthoptic training and to differentiate into groups those cases which will benefit by it quickly, those which will require protracted training and those for whom it is clearly a waste of time and trouble.

Miss Pugh is particularly well qualified to write with authority on this subject. She is the Medical Officer in charge of the Orthoptic department at the Moorfields Eye Hospital, where a very considerable number of patients come under her care and where she has the opportunity of following up the post-operative results of twelve surgeons and the resident staff. The author has given a careful survey and as far as possible an assessment of the place and value of orthoptic training in ophthalmology.

Chapters 1 and 2 are concerned with the classification of cases of strabismus and their investigation preliminary to treatment. Chapter 3 is devoted to a full description of binocular vision. Chapter 4 deals with methods of training and chapter 5 with the training of such difficult cases as those which have abnormal binocular projection and abnormal retinal correspondence. Chapter 6 is concerned with the selection of cases for operation and post-operative results. The appendix contains an account of a number of modern orthoptic instruments and their development.

This little book will afford a useful guide to the present status of orthoptic training. The author has given a well balanced account of this subject. The print, paper, and illustrations are excellent.

CORRESPONDENCE

"POSTERIOR NEEDLING" IN THE TREATMENT OF LAMELLAR AND OTHER FORMS OF SOFT CATARACT

To the Editors of THE BRITISH JOURNAL OF OPHTHALMOLOGY.

SIRS,—Dr. Ballantyne's paper on the above subject in the September number of the Journal contains some unjustifiable criticisms of the anterior needling operation which should not, I think, pass unchallenged. The disadvantages he speaks of are unduly, and I feel sure unintentionally, exaggerated in order to throw into relief the benefits of a posterior needling.

In the first place, swelling of the lens can only take place when the capsule is intact, or practically intact as is the case after an

imperfect needling, the result of faulty technique; and glaucoma, as Dr. Ballantyne rightly says, is likely to occur under these conditions. To talk of swelling of the lens when masses of opaque lens matter are protruding from the opening in the capsule and filling the anterior chamber is a mistaken use of the term. Glaucoma may occur under those circumstances due to the lens matter blocking up the angle of the anterior chamber but such a complication only rarely takes place because the angle is not usually blocked throughout its whole circumference, thus leaving a sufficient number of open channels through which the aqueous fluid can drain away.

The incision in the capsule must be made as large as possible, but one can never say whether any individual operator has opened the capsule satisfactorily or not, unless one knows his method of manipulating the needle.

There is no doubt that the uncertainties of the anterior needling operation, which Dr. Ballantyne speaks of, are mainly due to an imperfect opening of the capsule, and if I personally am compelled to do more than one needling (apart from the final capsulotomy), which I seldom have to do, I immediately suspect my operative technique, but do not condemn the operation.

Abundance of lens matter in the anterior chamber following a successful needling occasionally produces some irritation of the iris, when it may be advisable to do a curette evacuation, and the same procedure is necessary in those cases of glaucoma, but an anaesthetic is by no means always unavoidable for this operation, and I have generally performed it without. Nor do I find the " conditions unfavourable."

Some operators prefer to do a curette evacuation in any circumstances in order to shorten the waiting period which is otherwise necessary before the lens matter becomes completely absorbed; and I myself am in favour of this procedure, especially in these days when the risk of septic infection can be practically eliminated.

I am not, therefore, one of those operators who " must have experienced some anxiety " in dealing with cataract by the anterior needling operation. As regards the posterior needling operation, I notice that 2 or 3 needlings are generally to be expected, and the needle is entered 5 mm. behind the sclero-corneal margin which is very near, if not even through, the ciliary body, and which I should say is at least undesirable.

Results of experiments conducted many years ago by Sir John Parsons appeared in the *Royal London Ophthalmic Hospital Reports*, Vol. XV, and were described again by him, in conjunction with similar works by others on the same subject, in Vol. II of his book on the Pathology of the Eye; and the impression left

on my mind after reading the pathological details has been to discourage me from entering the vitreous by puncturing the sclerotic with a needle or a knife, unless it is absolutely necessary. I do not think the questions of payment for a nursing home or missing a few weeks in a child's education period should have any weight in discussing the merits or demerits of any operation. It is entirely a question of which operation is the safest and best for the patient.

I do not share Dr. Ballantyne's surprise that the posterior needling operation is not more popular.

Yours faithfully,

MALCOLM L. HEPBURN.

LONDON,
October 1, 1936.

BIFOCALS

To the Editors of THE BRITISH JOURNAL OF OPHTHALMOLOGY.

SIRS,—Bifocal lenses, in which no displacement of the object is apparent to the observer upon the visual axis passing from the distance portion into the reading portion, have been produced by J. & R. Fleming for a large number of years. They have been marketed under the name of " Monaxial." They are constructed of one piece of glass of the style termed " solid bifocals," although originally made in a " visible " form, they have been produced in an " invisible " style since 1929.

Yours faithfully,

J. & R. FLEMING, LTD.
A. P. COULDEN.

LONDON,
October 6, 1936.

Mr. Williamson-Noble has asked us to call attention to the fact that at the end of his article he mentioned that a similar lens had already been manufactured—*Editors.*

OBITUARY

REGINALD THORPE

We regret to record the death of Reginald Thorpe on October 9, 1936, aged 75 years. He was the younger son of the late John Thorpe, Esq., of the Chase, Clapham, and was born in 1861. Thorpe was educated privately and at Trinity College, Dublin, and entered St. George's Hospital in 1883. He suffered much from

eye-strain during his student days and it was not until 1891 that he took the qualification of M.R.C.S., L.R.C.P. Starting in practice in Balham, Thorpe, after some years, realised that there was an opportunity for him to combine refraction work with general practice.

For many years he was ophthalmic clinical assistant at St. George's Hospital, attending regularly three afternoons a week. During the years 1917-1919 he was visiting ophthalmic surgeon to the Grove Military Hospital, Tooting, and in the latter year he became a member of the Ophthalmological Society. Ten years ago he was elected one of the refraction assistants at Moorfields and severed his connection with St. George's. His other appointments included those of oculist to the L.C.C. school clinic at Wandsworth and hon. ophthalmic surgeon to the Western General Dispensary. Thorpe was a hard worker and, being most conscientious, he achieved a large measure of success.

NOTES

The American Academy of Ophthalmology

SIR JOHN PARSONS has recently visited America as the guest of the American Academy of Ophthalmology and Oto-laryngology. His address on "Ophthalmology and Research" will be published in this journal.

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The Lucien Howe Medal

DURING his visit to New York the Lucien Howe Medal of the American Ophthalmological Society was presented to Sir John Parsons in recognition of his services to ophthalmology.

The previous recipients of the medal have been: Carl Koller, Alexander Duane, Ernst Fuchs, Edward Jackson, Priestley Smith, Theodor Axenfeld, F. H. Verhoeff, C. E. de Schweinitz.

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Appointment

Mr. F. W. LAW has been elected Assistant Surgeon to the Royal London Ophthalmic Hospital.

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Corrigendum

IN connection with the Annual Lectures given under the aegis of the North of England Ophthalmological Society, we are asked to state that the second lecture will be given by Professor Ballantyne at the Manchester Royal Infirmary and not at the University.

FUTURE ARRANGEMENTS

1936

November 6.—North of England Ophthalmological Society, at Bradford.

November 13.—Royal Society of Medicine; Section of Ophthalmology.

December 1.—Midland Ophthalmological Society, at Birmingham Eye Hospital.

December 4.—North of England Ophthalmological Society, at Leeds.

December 11.—Royal Society of Medicine; Section of Ophthalmology (Clinical Meeting).

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January 8.—Royal Society of Medicine; Section of Ophthalmology.

January 29.—North of England Ophthalmological Society, at Sheffield.

February 1.—North of England Ophthalmological Society, at Manchester.

February 5.—North of England Ophthalmological Society, at Newcastle-on-Tyne.

February 12.—Royal Society of Medicine; Section of Ophthalmology.

March 5.—North of England Ophthalmological Society, at Liverpool.

March 12.—Royal Society of Medicine; Section of Ophthalmology (Clinical Meeting).

April 9.—North of England Ophthalmological Society, at Sheffield.

June 11.—Royal Society of Medicine; Section of Ophthalmology (Annual).

CONTEMPORARY OPHTHALMIC LITERATURE

American Journal of Ophthalmology. *October, 1936.*

BURKY. Studies on the action of staphylococcus toxin and antitoxin with special reference to ophthalmology.

THOMPSON, GALLARDO and KHORAZO. Precipitins in the ocular tissues of rabbits generally and locally immunized with crystalline egg albumin.

MEYER and PALMER. On the nature of the ocular fluids.

MAURY. The pathology of lattice and nodular dystrophy of the cornea.

GRADLE and MEYER. The surgery of retinal detachment.

CLARK. Accidental freezing of the eye by sulphur dioxide.

WHALMAN. Dinitrophenol cataract.

ROLETT. Contact glasses as a therapeutic agent in corneal ulcers.

SHAPIRA and CRAGE. Pupillary variability in 108 syphilitic patients.

Archives d'Ophtalmologie. *September, 1936.*

PASCHEFF. Parasitic pseudo-tumours of the orbit.
WEINGOTT. Pathogenesis, aetiology and treatment of glaucomatous iridocyclitis.
BIRO. Data on the hereditary character of some ocular diseases.
BUSACCA. Partial detachment of Descemet's membrane.
ARCHANGHELSKY. Spatula-forceps for Heine's operation.

Annales d'Oculistique. *August, 1936.*

SÉDAN and JAYLE. Considerations on spasm of the central retinal artery.
ROY. Hypertrophy of the palpebral tarsus of the teguments of the face and the extremities of the limbs, associated with an almost generalised osteo-periostitis: a new syndrome.

September, 1936.

CHIAZZARO. The reabsorption of magnesium metal in the human eye.
RIFAT. Contribution to the aetiology of familial affections of the optic nerve.
MICHAIL. Researches on the lacrymal elimination of sodium chloride.

Annali di Ottalmologia e Clinica Oculistica. *June, 1936.*

MAGGIORE. Diathermy treatment for retinal detachment with particular regard to cases of undiscoverable retinal discontinuity.
BRUNO. Ciliary insertion and the probable histological significance of the fibre of Zinn's zonule.
SANTONASTASO. On the pathogenesis of hydrophthalmos.

Bollettino d'Oculistica. *July, 1936.*

MOTOLESE. Metastatic ophthalmia in rheumatism.
BORSOTTI. Contribution to the study of experimental oculotropism.
CIOTOLA. The question of the selective ability of the ciliary epithelium.
DUC. Visual symptoms in mescalinic poisoning.
BASILE. Contribution to the knowledge of the genesis of the retro-lenticular pigment ring.
PRISTER. A trap for simulators.
GRANCINI. Contribution to the study of conjunctival cysts.
CALOGERO. New progressive cyst of the bulbar conjunctiva with eosinophilia.

Bollettino d'Oculistica. *August, 1936.*

SALA. Second contribution to the pathological fats of the lens.
ALIQUO-MAZZEI. Tuberculosis of the conjunctiva.
CALOGERO. Contribution to the study of Marfan's syndrome.
FIORE. A rare case of total traumatic aniridia.
CASA. Ocular alterations in subjects with Werlhof's disease.
RUSSO. Tetany and bilateral cataract after hemi-thyroidectomy of an early exophthalmic goitre.

Revista Oto-Neuro-Oftalmologica y de Cirugia Neurologica Sud-Americana. *October, 1936.*

BISTIS. Hypertension, retinal and general.
PAVIA. Fundus of the eye. Infra-red ophthalmoscopy.

Archivos de Oftalmologia de Buenos Aires. *July, 1936.*

SORIANO, MALBRÁN and PICOLI. Toxic amblyopia from arsenical pentavalents. (Acetylarsan.)
PEREIRA. Prolapse of the vitreous in the anterior chamber and glaucoma after intracapsular cataract extraction.
ARGÜELLO and VON GROLMAN. Ocular naevus.
YALOUR. Ultra-violet therapy in ophthalmology.
PEYRET. Our actual experience in exstricturotomy combined with injections of acetic iodide.